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Committee on the Peaceful Uses of Outer Space
Scientific and Technical Subcommittee
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Draft report

IV. Matters relating to remote sensing of the Earth by satellite, including applications for developing countries and monitoring of the Earth's environment

1. In accordance with General Assembly resolution 72/77, the Subcommittee considered agenda item 7, entitled "Matters relating to remote sensing of the Earth by satellite, including applications for developing countries and monitoring of the Earth's environment".

2. The representatives of China, Egypt, India, Indonesia, Israel, Japan, Kazakhstan, Oman, Pakistan, the Russian Federation, Sri Lanka, South Africa and the United States made statements under agenda item 7. The observer for the Prince Sultan bin Abdulaziz Prize for Water also made a statement under the agenda item. During the general exchange of views, some statements relating to the item were also made by representatives of other member States.

3. The Subcommittee heard the following scientific and technical presentations:

(a) "Japan's participation towards climate change", by the representative of Japan;

(b) "Summary of the United States National Academy of Sciences 2017–2027 'decadal survey' for Earth science and applications from space", by the representative of the United States;

(c) "Creation and integration: introduction to the visualization platform of CHEOS data and application", by the representative of China;

(d) "Development of the Russian national Earth remote sensing system", by the representative of the Russian Federation.

4. In the course of the discussions, delegations reviewed national, bilateral, regional and international programmes on remote sensing, in particular in the following areas: air and water quality monitoring for aerosols and pollutants; monitoring of atmospheric processes; climate change, including essential climate variables monitoring; disaster management and vulnerability assessments; ozone loss; natural resource management; ecosystems management; forestry; hydrology; meteorology and severe weather forecasting; land use and land cover change monitoring; sea surface temperature and wind monitoring; environmental change;

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greenhouse gas monitoring and inventory; glacier mapping and studies; crop and soil monitoring; irrigation; precision agriculture; groundwater detection; space weather; health impacts; security; law enforcement; mineral mapping; and urban development.

5. The Subcommittee noted that the use of remote sensing technology, including hyperspectral remote sensing, and its applications had significantly improved the way in which people lived and worked. Remote sensing technologies had proved to be valuable tools for the collection of observation data, global monitoring and informed decision-making at all levels.

6. The Subcommittee also noted the continued interest of member States in cooperating internationally in the collection, processing and dissemination of Earth observation data and applications, in particular to strengthen the capacities of developing countries and to promote well-informed decisions. In that regard, the Subcommittee noted the availability and increased regional presence of numerous Earth observation data and application service providers, such as the Regional Visualization and Monitoring System (SERVIR), and of dedicated r. tional remote sensing laboratories, that offered opportunities for national and local decision makers to utilize satellite-derived information in different domains.

7. The Subcommittee further noted that the development of applications based on remote sensing greatly contributed to the achievement of the 2030 Agenda for Sustainable Development and also, in particular, to addressing the triple challenges of poverty, inequality and unemployment in Africa.

8. The Subcommittee noted the efforts of developing countries to: (a) improve the use of Earth observation data, including through the development and operation of national remote sensing satellites; (b) build national capacity to reduce poverty; (c) advance socioeconomic development through the rational and sustainable use of resources; and (d) improve the quality of life of their populations. Some delegations expressed the view that the increasing number of workshops and training opportunities offered in that domain was beneficial.

9. The Subcommittee noted with appreciation the development of knowledge platforms, online imagery access services and online mapping and visualization platforms for remotely sensed data that enabled the better utilization of and improved access to such data resources.

10. The Subcommittee noted the important role played by the Group on Earth Observations (GEO) and the Committee on Earth Observation Satellites (CEOS) and its working groups in improving the sharing of remote sensing data and worldwide access to data, and also noted the strong commitments of member States to supporting those initiatives.

11. The Subcommittee also noted the cooperation between the Office for Outer Space Affairs and the Prince Sultan bin Abdulaziz International Prize for Water with regard to the advancement of space science and technology to address the growing problem of water scarcity around the globe. It further noted the planned launch of a space and water knowledge portal to highlight the benefits of remote sensing technology in water management.

12. The Subcommittee further noted that the Brazilian Space Agency, the State Space Corporation Roscosmos of the Russian Federation, the Indian Space Research Corporation, the China National Space Administration and the South African National Space Agency were jointly establishing the BRICS Remote Sensing Satellite Constellation as a new mechanism to enhance cooperation for the sharing and exchange of remote sensing data to meet the current and future challenges of sustainable development. The Subcommittee noted that the partnership would also deepen space cooperation and allow enhanced collaboration with the Office for Outer Space Affairs and other international space organizations.

13. The view was expressed that the use of satellite-derived remote sensing data and related technology tools was largely inequitable owing to the lack in some countries

of adequate ground station infrastructure and infrastructure for receiving and distributing data, thereby limiting the socioeconomic benefits that could be derived from their use.

14. The Subcommittee noted the continued support for the activities of CEOS and that the European Commission was serving as Chair of CEOS for 2018. The Subcommittee also noted that the thirty-second plenary session of CEOS would be held in Brussels from 16 to 18 October 2018.

15. The Subcommittee also noted the continued support for the activities of GEO and that the next GEO executive committee and plenary meetings would be held in Geneva in March 2018.

XII. Examination of the physical nature and technical attributes of the geostationary orbit and its utilization and applications, including in the field of space communications, as well as other questions relating to developments in space communications, taking particular account of the needs and interests of developing countries, without prejudice to the role of the International Telecommunication Union

16. In accordance with General Assembly resolution 72/77, the Subcommittee considered agenda item 15, entitled "Examination of the physical nature and technical attributes of the geostationary orbit and its utilization and applications, including in the field of space communications, as well as other questions relating to developments in space communications, taking particular account of the needs and interests of developing countries, without prejudice to the role of the International Telecommunication Union", as a single issue/item for discussion.

17. The representatives of Indonesia, Mexico, the Netherlands, Oman, Pakistan, the Russian Federation, Saudi Arabia, South Africa, Sri Lanka and Venezuela (Bolivarian Republic of), as well as the representative of Argentina, on behalf of the Group of Latin American and Caribbean States, made statements under agenda item 15. During the general exchange of views, statements relating to the item were made by representatives of member States.

18. In accordance with the invitation extended by the Subcommittee at its fifty-fourth session, in 2017 (A/AC.105/1138, para. 277), the observer for ITU presented a report concerning the contribution of ITU to the peaceful uses of outer space, including the use of the geostationary satellite orbit and other orbits. In that connection, the Subcommittee took note with appreciation of the information provided in the annual report for 2017 of the Radiocommunication Bureau of ITU on the use of the geostationary satellite orbit and other orbits (see www.itu.int/en/ITU-R/space/snl/Pages/reportSTS.aspx), as well as other documents referred to in conference room paper A/AC.105/C.1/2018/CRP.7. The Subcommittee invited ITU to continue to submit reports to it.

19. Some delegations expressed the view that the geostationary orbit was a limited natural resource that was at risk of becoming saturated, thereby threatening the sustainability of space activities in that environment; that its exploitation should be rationalized; and that it should be made available to all States, under equitable conditions, irrespective of their current technical capabilities, taking into particular account the needs of developing countries and the geographical position of certain countries. Those delegations were also of the view that it was important to use the geostationary orbit in compliance with international law, in accordance with the decisions of ITU and within the legal framework established in the relevant United Nations treaties.

20. Some delegations expressed the view that the geostationary orbit, as a limited natural resource clearly in danger of saturation, must be used rationally, efficiently,

economically and equitably. That principle was deemed fundamental to safeguarding the interests of developing countries and countries with a certain geographical position, as set out in article 44, paragraph 196.2, of the Constitution of ITU, as amended by the Plenipotentiary Conference held in Minneapolis, United States, in 1998.

21. The view was expressed that the geostationary orbit was an integral part of outer space and that, therefore, its use should be governed by the provisions of the United Nations treaties on outer space and of ITU regulations.

22. Some delegations expressed the view that the geostationary orbit provided unique potential for access to communications and information, in particular for assisting developing countries in implementing social programmes and educational projects, disseminating knowledge and providing medical assistance.

23. The view was expressed that while the principle of "first come, first served" promoted efficient use of the geostationary orbit, it was detrimental to developing countries and emerging spacefaring nations such as South Africa, as it resulted in difficulties in coordinating the use of frequencies and satellite orbits to "latecomers" entering the space arena.

24. The view was expressed that the current regime for the exploitation and utilization of the geostationary orbit provided opportunities mostly to the countries with greater financial and technical capabilities and, in that connection, there was a need to take anticipatory measures to address the potential dominance of such countries in the utilization of space in order to address the needs of developing countries and of countries in particular geographical areas, such as those in equatorial regions.

25. Some delegations expressed the view that the current system of reserving slots in the geostationary orbit was abused by a number of satellite operators, which obtained dozens or even hundreds of orbital positions for the purpose of reselling them at more expensive prices, thereby hindering the development of the space programmes of those willing to utilize that unique orbit diligently. The delegations expressing that view were also of the view that the distribution of those critical locations should be made fairly, in accordance with the principle of equality and taking into account the limited character of the orbit, and that each State should have at least two orbital slots reserved in the location near its national territory.

26. The Subcommittee noted the experience of member States in their research into the technical aspects of an intensive introduction into geostationary satellite orbit fixed satellite services of a new generation of satellites, namely high-throughput satellites (HTS). The results of studies showed that existing norms pertinent to off-axis emissions from the ground stations of the fixed satellite service networks did not guarantee the protection of HTS networks. In that connection, the delegation expressing that view was of the view that the resolution of that problem was within the competence of ITU-R study group 4.

27. The view was expressed that the congestion of the orbital frequency resources of the geostationary orbit was continuing to increase, and thus there was a growing risk that the opportunities for effective utilization by developing countries of their rightfully guaranteed slots in the Fixed-Satellite Service (FSS) and Broadcasting-Satellite Service (BSS) plans of ITU were diminishing at an even faster pace. In that connection, the delegation expressing that view was also of the view that there was a need to revise those plans in order to ensure equitable, fair and sustainable use by all States of the orbital frequency resources of the geostationary orbit.

28. The Subcommittee noted that ITU had issued a recommendation entitled "Environmental protection of the geostationary-satellite orbit", which provided guidance about disposal orbits for satellites in the geostationary satellite orbit.

29. Some delegations expressed the view that, in order to ensure the sustainability of the geostationary orbit, as well as to assure guaranteed and equitable access to the

geostationary orbit based on the needs of all nations, taking into particular account the needs and interests of developing countries, it was necessary to keep that issue on the agenda of the Subcommittee and to explore it further, through the creation of appropriate working groups and legal and technical intergovernmental panels, as necessary.

XIII. Draft provisional agenda for the fifty-sixth session of the Scientific and Technical Subcommittee

30. In accordance with General Assembly resolution 72/77, the Subcommittee considered agenda item 16, entitled "Draft provisional agenda for the fifty-sixth session of the Scientific and Technical Subcommittee".

31. The Subcommittee noted that the Secretariat had scheduled its fifty-sixth session to be held from 11 to 22 February 2019.

32. The Subcommittee also noted that, in accordance with General Assembly resolution 72/77, it would submit to the Committee its proposal on the draft provisional agenda for its fifty-sixth session and recommended that the following items be included in the draft provisional agenda:

1. Adoption of the agenda.

2. Statement by the Chair.

3. General exchange of views and introduction of reports submitted on national activities.

4. United Nations Programme on Space Applications.

5. Space technology for sustainable socioeconomic development.

6. Matters relating to remote sensing of the Earth by satellite, including applications for developing countries and monitoring of the Earth's environment.

7. Space debris.

8. Space-system-based disaster management support.

9. Recent developments in global navigation satellite systems.

10. Space weather.

11. Near-Earth objects.

12. Long-term sustainability of outer space activities.

13. Use of nuclear power sources in outer space.

(Work for 2019 as reflected in the multi-year workplan of the Working Group (see para. [...] and annex II, para. 9, to the present report))

14. Space and global health.

(Work under a multi-year workplan of the Working Group to be determined (see annex I, para. 11, to the present report))

15. Examination of the physical nature and technical attributes of the geostationary orbit and its utilization and applications, including in the field of space communications, as well as other questions relating to developments in space communications, taking particular account of the needs and interests of developing countries, without prejudice to the role of the International Telecommunication Union.

(Single issue/item for discussion)

16. Draft provisional agenda for the fifty-seventh session of the Scientific and Technical Subcommittee.

17. Report to the Committee on the Peaceful Uses of Outer Space.

33. The Subcommittee also noted that, in accordance with the agreement reached by the Subcommittee at its forty-fourth session, in 2007 (A/AC.105/890, annex I, para. 24), the symposium at the fifty-sixth session of the Subcommittee, in 2019, was to be organized by the Committee on Space Research and that the topic of the symposium would be communicated to and decided upon by the Committee at its sixty-first session, to be held from 20 to 29 June 2018.

34. The Subcommittee noted with satisfaction the breadth of representation from the United Nations system engaged by the Office in the organization of the side meeting on the theme "The global space partnership for the sustainable development goals". In addition to representatives of the Office for Outer Space Affairs, representatives of ITU, the Operational Satellite Applications Programme of the United Nations Institute for Training and Research and the United Nations Development Programme had attended the meeting. The panellists had also included a representative of CNES.